

1 applicant's claim would appear to impermissibly rely upon hindsight, as opposed to any teaching or
2 suggestion to be found in the cited art.

3 As amended, Claim 1 further distinguishes over the cited art for the following additional
4 reason. As noted above, Kimura's working surfaces include a groove or channel running lengthwise
5 along the central portion of the work surface. That is, the groove is parallel to the longest sides of the
6 working surface (i.e., parallel to a length of the working surface, and orthogonal to a width of the
7 working surface, where the width is shorter than the length). Each of Kimura's working surfaces
8 includes an inner edge (disposed immediately adjacent to center 01). Kimura explicitly refers to
9 these inner edge surfaces as end surfaces 21g and 22g (see Column 8, lines 6-9), and specifically
10 states that the end surfaces abut one another (i.e., they are oriented in a facing relationship with
11 substantially no gap between them). Further, the end surfaces disclosed by Kimura are oriented
12 **orthogonal** to the length of the working surfaces (i.e., orthogonal relative to the channels that receive
13 the pipe), and parallel to the width of the working surfaces. In contrast, as recited in Claim 1 (as
14 amended), applicant's inner edge surfaces (which are similarly oriented in a facing relationship) are
15 oriented in parallel with the longitudinal axis of the working surfaces (i.e., parallel to the lengthwise
16 axis of the working surfaces). Referring to applicant's FIGURE 4, note that the inner edges (which
17 are oriented in a facing relationship and substantially abut one another) extend along the length of the
18 working surfaces (i.e., along the longest dimension of the working surfaces, or in other words, along
19 the longitudinal dimension of the working surfaces). Such an orientation is completely opposite the
20 orientation disclosed by Kimura.

21 Significantly, the orientation of the working surfaces and inner edges disclosed by Kimura are
22 particularly well-suited for bending elongate thick walled metal pipe, which typically has a much
23 longer length than its cross-sectional width. The working surfaces and inner edges disclosed by
24 Kimura might possibly be useful to form a bend across the width of an elongate metal plate.
25 However, Kimura's working surfaces would not be suitable for bending an elongate metal plate
26 **along the length or generally along the longitudinal axis** of the metal plate. To facilitate
27 lengthwise bending of elongate metal plates, Kimura's working surfaces would need to be shifted by
28 90°, such that the longer/lengthwise dimension of Kimura's working surfaces extend in the same
29 direction as the inner edges of the working surfaces (i.e., in the orientation disclosed and claimed by
30 applicant). However, the prior art does not teach or suggest changing the orientation of Kimura's

1 working surfaces to achieve the orientation recited and claimed by applicant. Matsumoto discloses
2 bending a work piece, yet nothing in Matsumoto's or Kimura's disclosure teaches or suggests that the
3 orientation of Kimura's elongate working surfaces should be modified to facilitate lengthwise
4 bending of an elongate metal plate. Any modification of Kimura's apparatus that would lead to an
5 equivalent of what is recited by applicant in Claim 1 would appear to impermissibly rely upon
6 hindsight, as opposed to any teaching or suggestion to be found in the cited art. Thus, Claim 1 is
7 clearly patentable over the art of record.

8 It is well recognized that that dependent claims must be patentable for at least the same
9 reasons as the claims upon which they depend. For this additional reason, the rejection of Claims 1-5,
10 9, 10, and 12-15 as being obvious over Kimura in view of Matsumoto should be withdrawn.
11 Accordingly, Claims 1-5, 9, 10, and 12-15 are patentable over Kimura in view of Matsumoto for the
12 reasons noted above.

13 Applicant has also substantially amended Claim 25 to emphasize that the working surfaces are
14 generally planar. As discussed in detail above, Kimura discloses that the working surfaces include an
15 elongate arcuate channel or a groove configured to support a metal pipe, and the only motivation to
16 modify such a configuration appears to be the impermissible application of hindsight. Accordingly,
17 Claim 25 is not anticipated by or obvious in view of the cited art. Recognizing that dependent claims
18 are patentable for at least the same reasons as the claims upon which they depend, the rejection of
19 Claims 25-28 as being obvious over Kimura in view of Matsumoto should be withdrawn.

20 With respect to independent Claim 39, the Examiner appears to argue that while Kimura teaches a
21 method for bending a thick walled metal pipe, Matsumoto is generally directed to bending a work piece.
22 The Examiner then asserts that it would have been obvious to use Kimura's method of bending thick
23 walled metal pipe to bend sheet metal. Significantly, Kimura does not teach or suggest that his method
24 for bending thick walled metal pipe could be used for bending sheet metal and does not suggest how to
25 modify his apparatus as would be required to do so. Similarly, Matsumoto does not provide any
26 disclosure that would motivate one of ordinary skill in the art to use Kimura's method for bending thick
27 walled metal pipe to instead bend sheet metal. It appears that the modification of Kimura that would be
28 required to enable bending sheet metal as taught by Matsumoto impermissibly relies upon hindsight.
29 Accordingly, Claim 39 is patentable over the cited art. Recognizing that dependent claims are
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1 patentable for at least the same reasons as the claims upon which they depend, the rejection of
2 Claims 39-41 as being obvious over Kimura in view of Matsumoto should be withdrawn.

3 Applicant has also substantially amended Claim 42 to emphasize that the working surfaces are
4 generally planar. As discussed in detail above, Kimura discloses that the working surfaces comprise
5 an arcuate groove or channel configured to support a metal pipe. The only motivation to modify such
6 a configuration appears to be the impermissible application of hindsight. Accordingly, and
7 recognizing that dependent claims must be patentable for at least the same reasons as the claims upon
8 which they depend, the rejection of Claims 42-44 as being obvious over Kimura in view of Matsumoto
9 should be withdrawn.

10 The preceding comments apply to each independent claim in the present patent application. It
11 should be noted that applicant has not specifically discussed the patentability of each dependent claim
12 over the cited art, and have chosen to forgo such an analysis in an effort to reduce the complexity and
13 length of this response. That decision should not be construed as an admission that the dependent
14 claims are not patentably distinguished over the cited art for additional reasons.

15 However, with respect to Claim 2, the Examiner has argued that Kimura both discloses "*adjacent*
16 *edges of said first and second working surfaces being separated by a gap having a predefined width*"
17 (Claim 2) and that "*adjacent edges of said first and second working surfaces substantially abut one*
18 *another*" (Claim 3). In fact, Kimura specifically discloses that the adjacent edge surfaces of the first
19 and second working surfaces *substantially abut one another* (see column 8, lines 6-9). Clearly, even
20 if the edges in Kimura are configured to substantially abut one another, as recited in Claim 3, abutting
21 edges do not achieve the configuration recited in Claim 2, since a substantial gap of predefined width
22 between two edges means that the two edges do not substantially abut one another. The term
23 "substantial gap" as now included in this Claim 2 indicates that the edges do not substantially abut
24 one another. Furthermore, applicant's specification goes into great detail disclosing how a gap of a
25 predefined width between adjacent edges of the working surfaces facilitates forming a channel in a
26 metal plate (see FIGURES 10A-10D and the related text). Kimura does not teach or suggest any
27 relationship between a gap having a predefined width and a configuration of the work piece that can
28 be formed. Applicant's Claim 2 thus distinguishes over the cited art for this additional reason.

29 With respect to Claims 4 and 27, the Examiner has argued that Kimura discloses a frame
30 comprising a first section and a second section, a position of said first section relative to said section being

1 adjustable to enable a width of a gap separating the adjacent edges of said first and second working
2 surfaces to be adjusted to a desired dimension. The Examiner specifically refers to FIGURE 3 of Kimura
3 as being illustrative of such an element. However, FIGURE 3 is a sectional view of Kimura's apparatus,
4 enabling details relating to the motion of the bottom dies to be more readily visualized. Contrary to the
5 Examiner's assertion, Kimura does not teach or suggest that the width of a gap separating the adjacent
6 edges of the first and second working surfaces can be manipulated or adjusted. Kimura discloses that the
7 first and second working surfaces can be entirely removed from the apparatus (see column 6, lines 27-33);
8 however, there is absolutely no indication that the mechanisms enabling removal of the first and second
9 working surfaces also enables a gap between the first and second working surfaces to be selectively
10 adjusted to vary the width of the gap. Kimura also discloses a mechanism enabling the position of the
11 metal pipe to be adjusted relative to the working surfaces, so that the bend can be properly positioned
12 relative to the length of the metal pipe (see in particular FIGURES 6A and 6B, lengths LE0, LE1 and
13 LE2). However, the mechanisms enabling the position of the metal pipe to be adjusted do not enable a
14 width of a gap separating the adjacent edges of the first and second working surfaces to be adjusted to a
15 desired dimension. Deflection of the working surfaces during operation of the press will result in some
16 motion of the adjacent edges of the working surfaces; however, the dimension of any separation distance
17 achieved is not under any direct control of the operator (i.e., there is no mechanism enabling an operator
18 to adjust the gap to a desired dimension). Even more significantly, when operation of the press results in
19 a slight change in the relative positions of the adjacent edges of the first and second working surfaces, that
20 *change is not a result of manipulating a first portion of the frame relative to a second portion of the frame*
21 *(that change is a result of keeping the frame in a fixed position while moving a presser die or ram relative*
22 *to the frame)*. Claims 4 and 27 therefore distinguish over the cited art for this additional reason.

23 With respect to Claim 12, the Examiner has argued that Kimura discloses that the first and second
24 working surfaces comprise *an angled upper surface having a shape selected to facilitate over bending of*
25 *sheet metal*. The upper surface of the bottom dies disclosed by Kimura include an elongate channel
26 configured to support an elongate metal pipe (see FIGURE 4B). The upper surfaces of the bottom dies
27 disclosed by Kimura do NOT include any upper angled surfaces configured to *facilitate over bending of*
28 *sheet metal*. Further, Matsumoto provides no disclosure that would lead one of ordinary skill in the art to
29 modify Kimura's apparatus to achieve an equivalent invention. Claim 12 thus distinguishes over the
30 cited art for this additional reason.

1 With respect to Claim 15, the Examiner has argued that Kimura discloses a resist element
2 comprising a channel, an elongate block partially disposed in the channel, and a spring disposed in the
3 channel so as to apply a restoring force against the elongate block. Such a configuration can be seen in
4 applicant's FIGURES 10A-10C. While Kimura appears to disclose a resist element that applies a
5 resisting force to said first and second working surfaces for countering at least in part a force applied
6 to deform the work piece, the resist element disclosed by Kimura is NOT equivalent to the structure
7 defined in Claim 15. The resist element disclosed by Kimura is support 42, whose function is
8 described at column 7, lines 7-25. Significantly, while support 42 is an elongate block, support 42 is
9 not disposed in a channel, nor is the spring exerting a restoring force to support 42 disposed
10 proximate to the support. As recited in Claim 15, the spring is disposed in the channel to apply a
11 restoring force on the elongate block. In Kimura's apparatus, the springs are disposed on support
12 rods in spring cylinders that are part of an upper portion of the frame, whereas elongate support 42 is
13 actually disposed in the lower portion. Clearly the resist element disclosed by Kimura (the
14 combination of springs 45, spring cylinders 44, rods 43, and support 42) is NOT equivalent to the
15 structure recited in Claim 15. Claim 15 thus distinguishes over the cited art for this additional reason.

16 Patentability of Newly Added Claims 47-52

17 New Claims 47-52 have been added in the present amendment. New Claim 47 corresponds to
18 rewriting Claim 6 (objected to) in independent form. New Claim 48 corresponds to rewriting
19 Claim 17 (objected to) in independent form. New Claim 49 corresponds to rewriting Claim 20
20 (objected to) in independent form. New Claim 50 corresponds to rewriting Claim 32 (objected to) in
21 independent form. New Claim 51 corresponds to rewriting Claim 21 (objected to) in independent
22 form. Because the Examiner has already indicated that each of the claims objected to would be
23 allowed if rewritten in independent form to include all the limitations of the base claim and any
24 intervening claims, Claims 47-51 should be allowed.

25 New Claim 52 corresponds to rewriting Claim 4 in independent form. As discussed in detail
26 above, Claim 4 (and Claim 52) includes an element not taught or suggested by the prior art. Claim 52
27 recites a frame comprising a first section and a second section, a position of the first section relative
28 to the second section being adjustable to enable a width of a gap separating the adjacent edges of the
29 first and second working surfaces to be adjusted to a desired dimension. While elements of Kimura's
30 frame certainly are adjustable, the reference does not teach that the elements comprising the frame in

1 Kimura's apparatus enable a width of the gap separating the adjacent edges of the first and second
2 working surfaces to be adjusted. Accordingly, Claim 52 recites patentable subject matter, and should
3 be allowed.

4 In view of the amendments and the Remarks set forth above, it will be apparent that the claims in
5 this application define a novel and non-obvious invention, and that the application is in condition for
6 allowance and should be passed to issue without further delay. Should any further questions remain, the
7 Examiner is invited to telephone applicants' attorney at the number listed below.

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9 Respectfully submitted,

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